DOCUMENT RESUME

ED 042 438 JC 700 198

AUTHOR	Snyder, Fred A.; Blocker, Clyde E.
TITLE	Persistence of Developmental Students.
INSTITUTION	Harrisburg Area Community Coll., Pa.
REPORT NO	RR-5
PUB DATE	70
NOTE	47p.
EDRS PRICE	EDRS Price MF-$0.25 HC-$2.45
DESCRIPTORS	Academic Performance, *Compensatory Education Programs, *Developmental Programs, *Institutional Research, *Junior Colleges, Remedial Programs, *Student Characteristics
IDENTIFIERS	*Pennsylvania

ABSTRACT

Students entering Harrisburg Area Community College (H.A.C.C.), Pennsylvania, who are identified as being inadequately prepared for regular coursework are assigned to appropriate developmental courses, to prepare them for subsequent entry into the regular career or transfer curricula. A recent analysis of the program outlines such factors as student backgrounds, characteristics, academic performance, and their interrelationships. The sample includes 67 per cent of the developmental students (456) who entered H.A.C.C. from 1965 through 1968. Of this sample, over 80 per cent were men, 70 per cent were 18 or younger at time of enrollment, and 60 per cent had completed an academic or college-preparatory program in high school. Most of the developmental students graduated in the bottom two-fifths of their class, and American College Testing Program (ACT) scores for about 70 per cent of these students were lower than the average for all H.A.C.C. students. Between 33 and 40 per cent of the developmental students did not return for additional work at the end of their first year. On the other hand, one-third of the former developmental students who enrolled in transfer programs in 1966 and 1967 earned degrees, though a considerably lower portion earned career program degrees. The graduation rate was moderately lower, then, for developmental students than for all H.A.C.C. graduates. Based on the information collected, areas for improvement have been identified. (JO)

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PERSISTENCE OF DEVELOPMENTAL STUDENTS

Research Report No. 5

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FOREWARD

The Harrisburg Area Community College is one of many institutions which offers developmental programs for academically disadvantaged students. This study provides a profile of certain characteristics of developmental students at H.A.C.C. and of their academic achievement at the College. It is the fifth in a series of studies about students and former students of the Harrisburg Area Community College.

Persistence of Developmental Students is built upon two previous studies, one by Leo Johns, Director of Counseling Services, and one by the senior author of this report. As with previous research projects at H.A.C.C., this study was completed through the cooperation of a number of persons. Personnel from the College Data Processing Center have been helpful in retrieving data from master records and in preparing data summaries. A preliminary draft of the report was carefully reviewed by Leo Johns and John Goodyear. Corwin Hale provided valuable editing assistance. Within the Research Office, Barbara Riccuito worked extensively on data tabulations and Virginia Gross made numerous suggestions for improving the report, in addition to providing all typing services and preparing figures and tables.

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The Developmental Student

When the Harrisburg Area Community College first opened for classes in 1964-1965, some students were identified during the processes of admission and course placement as being inadequately prepared to take standard introductory courses in their chosen curricula. Thus, almost immediately, the need for offering "developmental" courses to some students became apparent. The 1966-1967 College Catalogue (p. 66) contained a definition of a developmental student and a brief description of the developmental program. A developmental student was one who was required to schedule

> two or more courses necessary for admission to the curriculum that he plans...to enter.
>
> this program seeks to provide for applicants the opportunity to develop their academic proficiency and their techniques of study to the extent that they qualify for admission to either (a career program) or (a transfer program).

Courses were originally designed in areas of reading, English, and mathematics. Additional courses were incorporated and/or dropped from time to time, and specific student services, including special admissions procedures and a group guidance program, were added.

A central idea for the developmental program which has been retained over the years is that the program not be terminal, but that it should prepare students for unrestricted entry into regular career or transfer curricula of their choice. For this reason, one of the basic criteria for evaluating the program is the extent to

which former developmental students have earned the associate degree. Developmental students were encouraged to enroll during a summer term preceding the start of the regular fall semester, in order to enhance their chances of completing their program within the normal two years. As a result, more developmental students enrolled during the summer terms than during the fall and spring semesters.

Need for this Study

The number of matriculants in the developmental program have continued to increase each year, from 157 during the 1965-1966 year to 488 during the 1969-1970 year (Table 1). Questions about the program outcomes and effectiveness have not been answered sufficiently, despite enrollment increases. Boggs (1968) noted that across the country little research has been produced to demonstrate the success of special educational programs for low-achieving students.

Two brief studies of outcomes from the developmental program at Harrisburg Area Community College were completed prior to this study. One study focused upon differences in achievement between students who enrolled in group guidance and those who did not enroll (Johns, 1968). This report, while noting little differences in achievement or retention of the two groups, found that three-fourths of the students who matriculated during the 1967 summer session continued their enrollment during the subsequent semester. Another study (Snyder, 1968) found that three-fourths of the developmental students who matriculated during 1965 and 1966 earned grade point averages sufficiently high to

allow their continued attendance at the College beyond two terms. However, neither of these studies were able to provide substantial information about the long-term benefits of the developmental program. Such a study would have to focus upon more meaningful criteria of achievement, measured over longer periods of time.

Purpose of this Study

The purpose of this study was to measure the extent of academic achievement and persistence of students who matriculated in the developmental program at the Harrisburg Area Community College from 1965 through 1967 and to identify factors which appear to be related to their academic success or failure. Criteria of achievement and persistence include the number of credits earned, grade point average, and receipt of an associate degree. This report is intended to be of interest primarily to educators who are concerned about remedial or developmental education at secondary or post-secondary levels of students whose backgrounds mark them as academic risks.

Population and Sample

As was noted earlier, developmental students have been enrolled at H.A.C.C. since 1965, and their numbers have risen steadily through 1969 (Table 1). The sample for this study included matriculants for the three early years, 1965-1966 through 1967-1968. All of the 154 matriculants during the 1965-1966 year were included, nearly all of whom entered the College during the fall semester. The 1966-1967 group included 110 students, nearly all of whom matriculated during

the summer of 1966. The 1967-1968 group included 192 students who matriculated during the summer of 1967. The latter two sample groups did not include students who enrolled during fall and spring semesters, but they did include 56 percent and 59 percent of the respective 1966-1967 and 1967-1968 developmental matriculants. In all, 67 percent of the developmental students who matriculated during the three-year period were included in this study.

Figure 1 shows the total developmental matriculant population and the sample groups for each year through 1969-1970. The three sample groups were selected because they were the subjects for earlier studies, and it was economically feasible to update previous information for this study. Data for this study were obtained from two earlier studies (previously cited) and from the data processing center of the College.

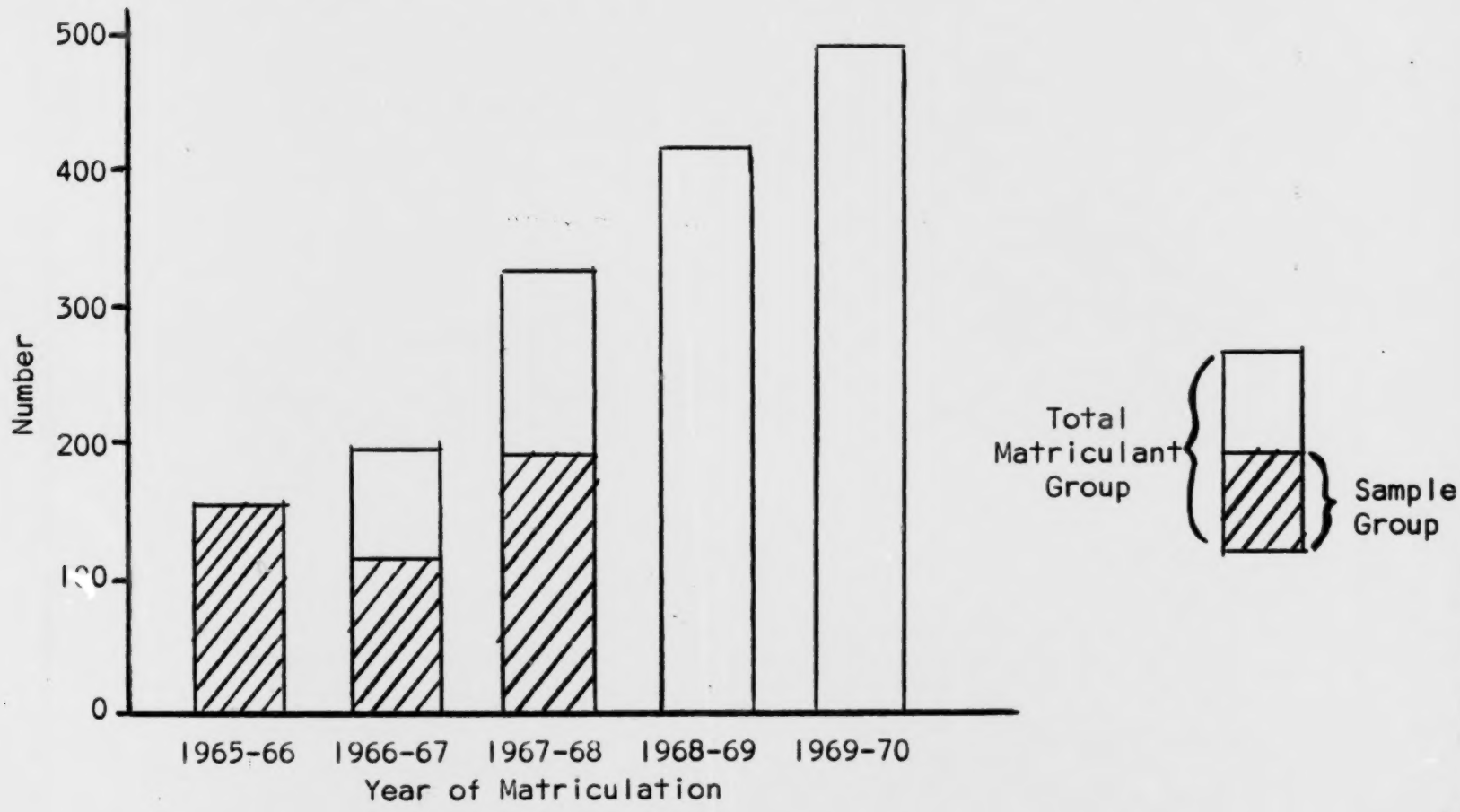

Figure 1. Developmental Student Population and the Sample for this Study, by Year of Matriculation.

Limitations

There are several limitations to this study. One, the subjects in the 1966 and 1967 groups include essentially only those students who were enrolled during the summer sessions; substantial numbers who matriculated during the fall and winter semesters were excluded. It is commonly believed by counselors at H.A.C.C. that the developmental students who matriculated during summer terms differed in background characteristics or in motivation from those who matriculated during fall and spring semesters. Two, this study does not attempt to evaluate specific aspects of the developmental program, but it focuses upon overall data of student achievement and persistence.

Nevertheless, the writers believe that the sample groups are sufficiently representative of the developmental student population to justify their inclusion. Also, an overall evaluation of outcomes from the developmental program is believed to be necessary and useful at this time.

Plan of this Report

This report is organized to provide (1) a brief description of the developmental students and of their academic backgrounds upon entering the College, (2) a summary of the academic performance of these students at the College, and (3) an investigation of certain relationships between academic performance and student background characteristics. Also included are interpretations of the findings of this study, recommendations for the developmental program, and questions which require further consideration.

Extensive data tabulations are contained in tables which appear in an Appendix. Selected information about the data is included in the body of the report to highlight certain findings.

Description of Students

Several personal and academic characteristics of the developmental students in this study are examined, to include sex, age, high school rank in class, American College Testing Program scores, and college curriculum. In all, 456 students were included.

Just over eight-tenths were men, and the remainder were women (Table 2). Only 11 of the students were veterans who were receiving GI benefits. The students were overwhelmingly young, seven-tenths being 18 years of age or younger at the time of their matriculation (Table 3). Less than one-tenth were 21 years or older. There appeared to be little variation in the sex or age distribution of students who matriculated from 1965 through 1967.

Academic Background

Six-tenths of these students completed an academic or college-preparatory curriculum in high school, and the remainder completed non-academic curricula. A greater proportion of females than males completed an academic curriculum (Table 4).

This study confirmed that the majority of developmental students at H.A.C.C. graduated in the lower half of their high school class. Overall, about six-tenths of the developmental students graduated in the lower two-fifths of their high school class (Table 5). The

greatest proportion of both men and women students ranked in the fourth fifth of their high school class, over three-tenths in each case. Male students tended to rank lower in high school class than females; six-tenths of the males compared to four-tenths of the females graduated in the bottom two-fifths of their class (Table 5). At the higher achievement levels, just over one-tenth of the males and just over one-fourth of the females graduated in the upper two-fifths of their class. There was little variation in high school class rank among the three matriculant groups from 1965 through 1967, suggesting that the criteria for placement into the developmental program has not changed much over the three-year period (Table 6).

The scores obtained from the American College Testing Program examination provide a second measure of academic ability. ACT scores are developed for each of four subtests--English, mathematics, social science, and natural science--and a composite score. ACT scores were available for only a portion of the students in this study. No scores were available for the 1965 matriculants. Scores were available for 74 percent of the combined 1966 and 1967 sample groups. Each of the mean average ACT subscores and the composite score for developmental students was lower than that earned by all matriculants at H.A.C.C. during 1966 and 1967 (Table 7). The composite score for developmental students in 1967 was 16.4, compared to 18.6 for all students (ACT, 1968a). A similar difference of about two points was noted during 1966 (ACT, 1967). It is consequently estimated that about seven-tenths of the developmental students earned ACT composite scores

which were lower than the average score for all students at H.A.C.C., and three-tenths earned higher scores.

Men, compared to women, earned noticeably superior scores on three of the four ACT subtests and on the composite distribution (Table 8). Only in the English subtest did women earn higher ACT scores. Although women students ranked higher in their high school class (Table 5), men students scored generally higher on the ACT examination.

Students who ranked lower in their high school class tended to earn higher ACT scores (Table 9). Students who ranked in the fourth fifth (next to the lowest) earned the highest ACT scores, and those who ranked in the upper two-fifths earned the lowest ACT scores. This apparently contradictory finding is probably the result of the combination of two criteria that are commonly used to assign students to the developmental program--high school grades in core subjects, and high school rank in class. Students who ranked high in their class and who earned higher ACT scores are simply removed from the developmental student population.

In earlier paragraphs the mean ACT scores of developmental students were examined. It is of interest also to compare the ACT scores earned by developmental students at H.A.C.C. with several other student groups--all matriculants at H.A.C.C., matriculants at all Pennsylvania community colleges, and the two-year college national ACT norm group (Table 10). As noted earlier, the entire matriculant group at H.A.C.C. earned higher ACT scores than did the developmental students. The national

two-year college norm group earned ACT scores similar to the regular H.A.C.C. matriculants. In terms of ACT composite scores, the developmental students were most like the Pennsylvania community college group, earning a mean ACT composite score of 16.5, compared to 16.7 for the statewide group. The statewide group earned proportionally more scores of 14 or lower and more scores of 20 and over. This reflects a greater heterogeneity of abilities among the statewide community college group, as compared to the developmental student group at H.A.C.C.

There are two implications from the above comparisons which should be noted: (1) There is no precise national or inter-institutional meaning to terms such as developmental student, preparatory student, etc. Such groups must be defined and understood at the local level. Therefore, the findings of this study should be generalized to groups at other colleges with caution. (2) This sample group contains relatively few students with severe academic disadvantages, and if greater numbers of such students are enrolled it will become necessary to reconsider the implications for educational objectives, programs, and services of the College.

Curriculum at H.A.C.C.

As was noted earlier in this report, the designation "developmental student" is a temporary one, to be replaced when the student qualifies for admission into one of the regular programs of the College. Thus, most successful developmental students change their curricular designation at the end of their first term at the College. A summary of the curricular enrollments of former developmental students who

were included in this study is contained in Table II. Four-tenths were enrolled in career curricula during their last semester of attendance at the College, just over one-half were enrolled in transfer curricula, and less than 10 percent were enrolled in programs that were listed as "special" or "unknown." An earlier study (Snyder and Blocker, 1969, p. 36) showed that for all students at H.A.C.C., the proportion in transfer programs was twice that in career programs. Thus, former developmental students were enrolled somewhat more, proportionally, in career programs than was the student body as a whole.

Academic Performance

The three measures of academic performance investigated in this study include (1) number of credits completed, (2) grade point averages, and (3) associate degrees earned.

Credit Hours

The number of credits carried by developmental students was examined at the end of the first term of attendance, at the end of two terms, and at the end of the students' entire period of enrollment at the College. We need to remember that of the 456 subjects of this study, all but about 160 matriculated during a short summer term.

During the first term of attendance, students carried an average (median) of five credit hours (Table 12). Six-tenths of the students carried six credits or fewer. Fifteen percent carried 13 credits or over, and it can be expected that most of these would have matriculated during the fall 1965 semester. Men and women students carried about the same number of credits.

During the first two terms of attendance, usually the summer session and the fall semester, both men and women students carried a cumulative average (median) of 20.3 credits (Table 14). The number of credits carried during that period was distributed broadly. Nearly one-tenth of the students carried a cumulative six credits or fewer, two-tenths carried from 7 through 18 credits, and one-half carried from 19 through 24 cumulative credits. Nearly two-tenths carried a cumulative 25 credits or more. These data, and those for the cumulative period of attendance, include those students who withdrew from the College after the initial term.

As was noted earlier, the students in this study matriculated during 1965, 1966, or 1967. As a result, they had the opportunity for attendance at the College for periods of five, four, or three years, respectively. Despite these long periods, over one-tenth of the 1965 and 1966 matriculants and over one-third of the 1967 matriculants were still attending the College for one or more courses during the 1969-1970 year (Table 13). On the other hand, from one-third to four-tenths of the three matriculant groups withdrew from the College by the end of their initial year of enrollment and did not return to the College for additional work. One-third of the developmental students earned over 60 credits, and thus fulfilled one of the requirements for earning the associate degree. On the average, female students earned more credit hours than males, 45 and 38, respectively (Table 15).

Grade Point Average

The grade point averages earned by developmental students were examined for the first term or semester, the first two terms or semesters,

and the cumulative period of attendance at the College.

During their initial term of attendance, developmental students earned a 2.12 (on a 4.00 scale) mean average (Table 16). There was little variation in initial term grades according to high school rank in class (Table 17). Students in the upper three-fifths of their high school class earned a mean grade point average of 2.25, compared to a 2.09 for students in the bottom two-fifths of their high school class. Students who obtained higher ACT scores (19 or above) earned higher grades during their initial term than those who earned lower ACT scores (Table 18). However, students whose ACT scores were in the middle range earned lower grades than those whose ACT scores were lowest.

The mean grade point average dropped from 2.12 at the end of the first term to 1.64 at the end of two terms (Table 19). This drop in grades from the first to the second term of attendance probably is a result of enrollment in the more rigorous courses which followed the initial developmental courses.

Grade point averages for the cumulative period of attendance rose from the two-term level of 1.64 to a 1.78 (Table 20). Female students earned higher grades than did males, 1.94 compared to 1.75. Fifty-five percent of the women and 42 percent of the men earned a 2.00 (C) average or better. Figure 2 illustrates the mean grade point averages of men and women developmental students at the end of their initial term of attendance, the first two terms, and their cumulative attendance through 1969-1970.

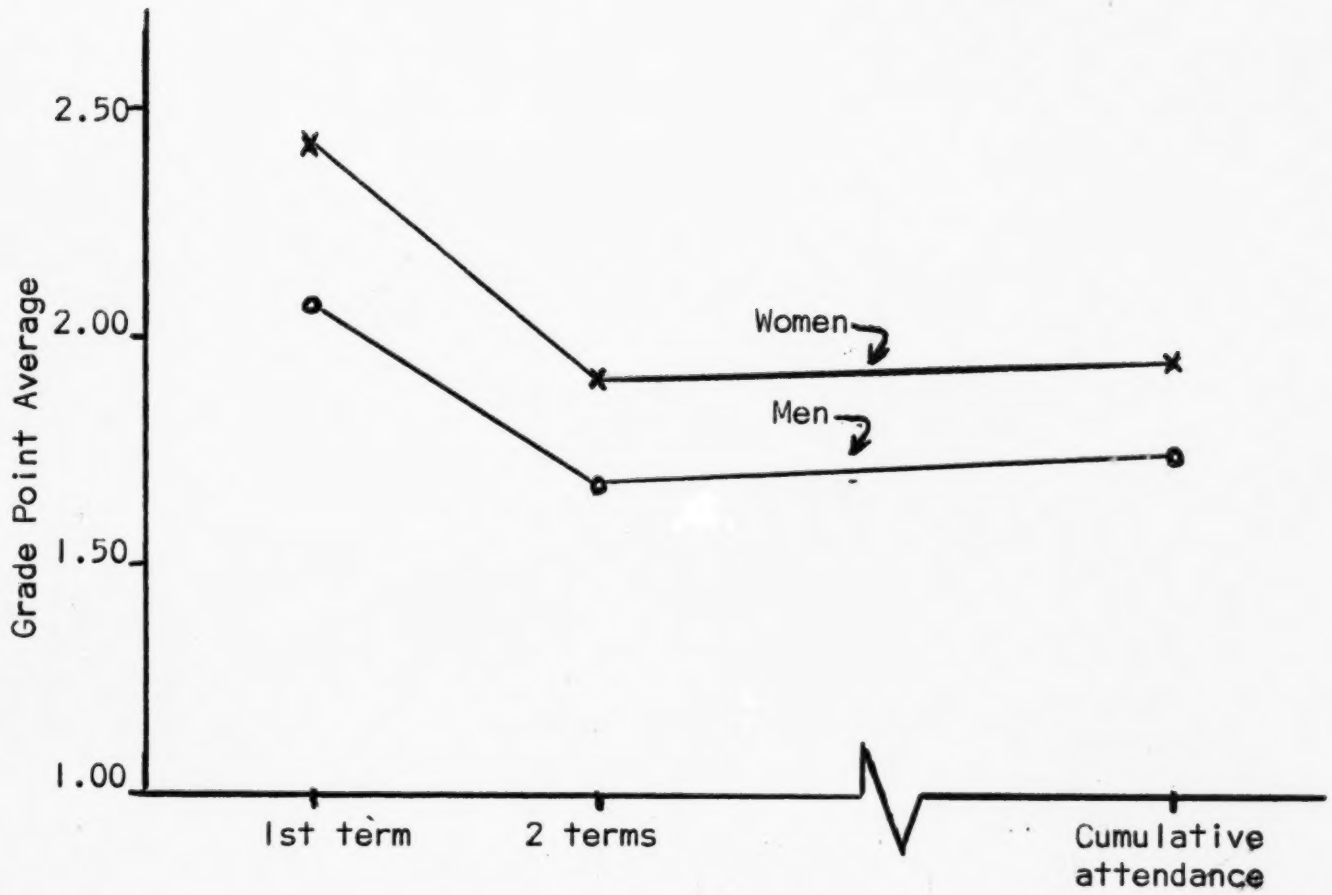

Figure 2. Mean Grade Point Average Earned by Developmental Students at the End of the First Term, Second Term, and Cumulative Period of Attendance.

The cumulative grade point averages of former developmental students were also examined according to high school rank in class and ACT score. The relationship between cumulative grade point average and high school rank in class appears to be positive, but non-linear. Students who ranked in the middle fifth of their high school class earned the highest grades, and those who ranked in the lowest fifth of their class earned the lowest grades at H.A.C.C. (Table 21).

The relationship between mean cumulative grades and ACT composite scores appears to be somewhat negative and non-linear. Highest grades

were earned by those students whose ACT scores were in the ranges of from 1 to 15 and from 16 to 18. Lowest grades were earned by students whose ACT scores were 19 or above (Table 22). The meanings of these findings require careful exploration, which is largely beyond the scope of this study.

Associate Degrees Earned

In this section, we examine the extent to which former developmental students earned associate degrees, according to sex, year of matriculation, high school rank in class, and ACT scores. Overall, 27 percent of the former developmental students earned associate degrees (Table 23). Females were somewhat more successful than males; 30 percent of the women and 26 percent of the men earned degrees.

The matriculants in the developmental program during 1965 were considerably less successful than those who matriculated during 1966 and 1967 (Table 24). Just 18 percent of the 1965 developmental matriculants earned degrees, but one-third of the 1966 matriculants and three-tenths of the 1967 matriculants earned degrees. An earlier study (Snyder, March 1970) concluded that one-third of all students who matriculated at the Community College from 1964 through 1966 earned degrees. Thus, although the graduation rate of former developmental students is lower than that for all matriculants at H.A.C.C. (27 percent and 33 percent), the overall difference is rather moderate or even non-existent for the 1966 and 1967 developmental matriculants (Figure 3). Consequently, the writers conclude that the developmental program has been reasonably effective and that it certainly deserves to be continued.

The comparison just made should be accepted with caution, as the two studies dealt with matriculants from different (but overlapping) periods. Additional studies of more recent matriculants, which include controls not used in this study, are needed.

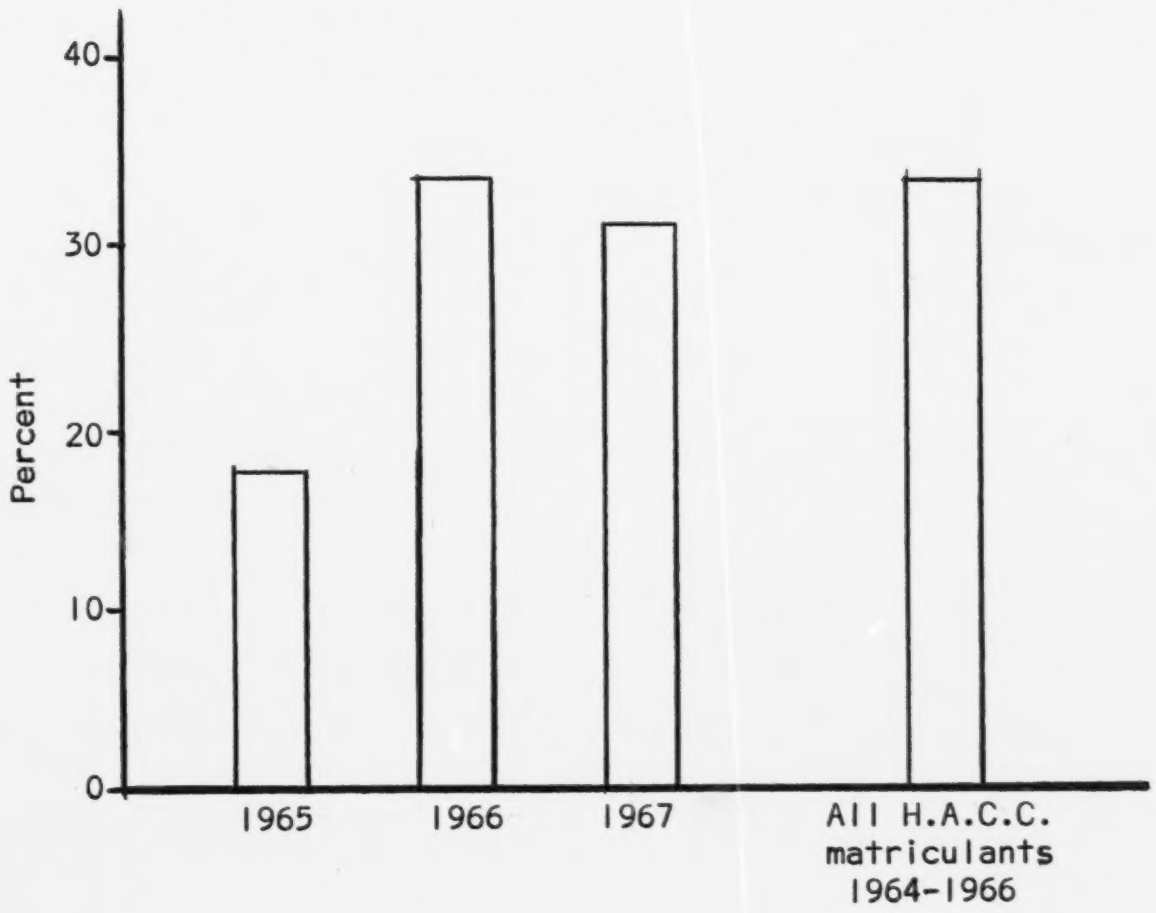

Figure 3. Comparison of Percentages of Matriculants Who Earned Associate Degrees.

There appeared to be a positive relationship between high school rank in class and earning the associate degree (Table 25). One-third of the students in the upper three-fifths of their high school class earned degrees, and just over one-fifth of those in the lower two-fifths earned degrees. Although students who were in the upper three-fifths of their high school class did have more success in earning the associate degree, those in the bottom two-fifths were also relatively successful.

Students who were most successful in earning degrees earned ACT composite scores from the middle range of 16 to 18 (Table 26). For these developmental students, the high school rank in class appeared to be a better predictor of success than the ACT composite score.

Degree Recipients and Non-Recipients

It is of interest to compare certain characteristics of associate degree recipients and non-recipients in this study. For each of the two groups, we will examine ACT scores, curriculum of last attendance at H.A.C.C., cumulative credits completed,and the cumulative grade point average earned.

Degree recipients earned higher mean scores on each of the ACT subtests and on the composite score distribution (Table 27). These differences ranged from a low of six-tenths of a point in English and natural science subscores to a high of 1.7 points in mathematics. The mathematics subscore differentiated most between degree recipients and non-recipients. We need to remember that just 75 of the 123 graduates and 153 of 333 non-graduates completed the ACT test.

Former developmental students were considerably more successful in earning degrees in transfer programs than in career programs. One-third of the students who enrolled in transfer programs earned degrees, but the proportions who earned degrees in career areas ranged from a low of 15 percent in engineering and related technologies to 23 percent for secretarial and business career students (Figure 4, Table 28). Two-thirds of all associate degrees were earned in transfer areas, although just over half of the former developmental students

were enrolled in transfer programs. These findings that former developmental students are notably less successful in career areas than in transfer areas serve as a contradiction to the assumption that marginal or developmental students might better aim for a "terminal" program in a career area rather than aspire to complete a transfer program! We need to examine closely the reasons why this is so.

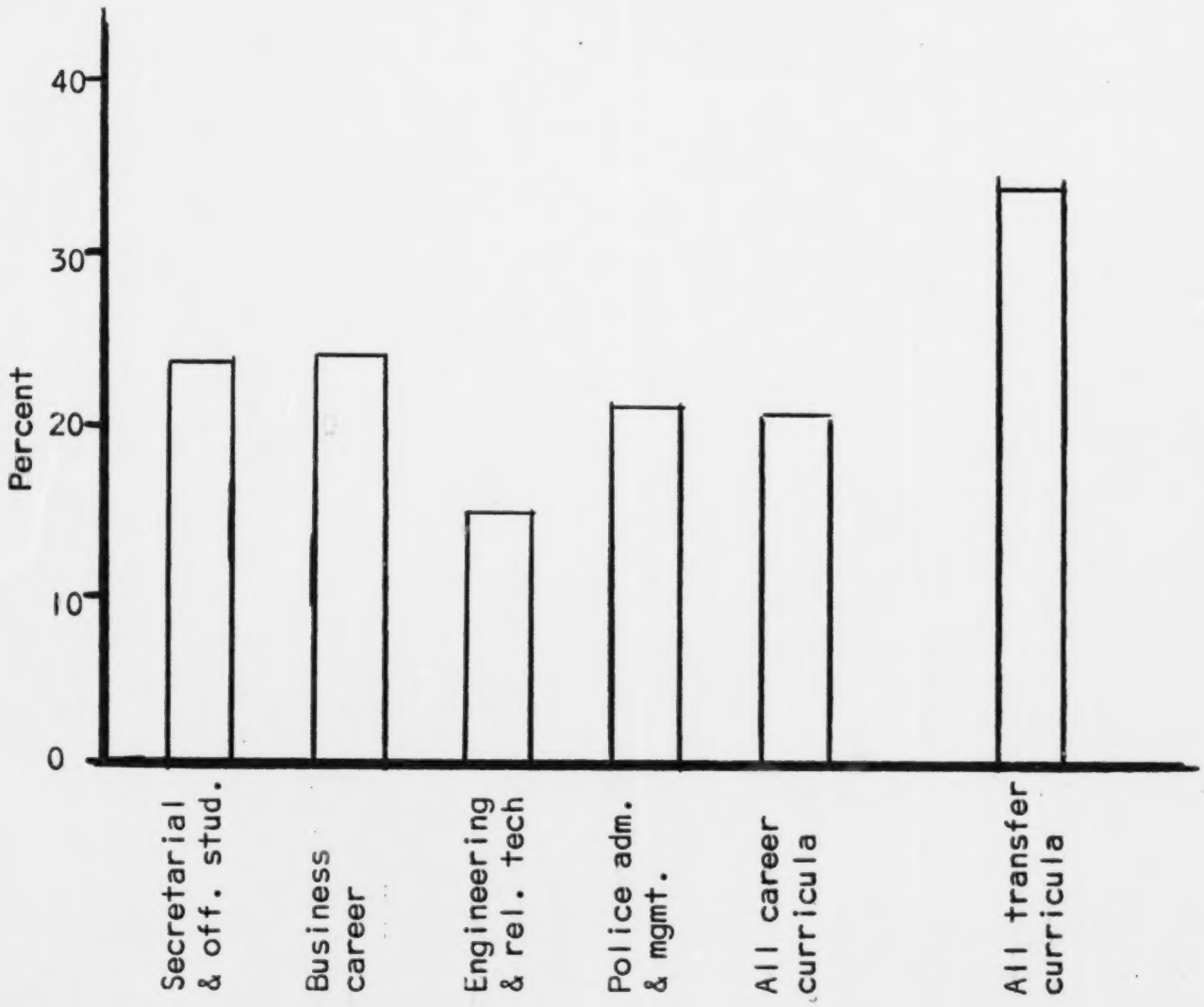

Figure 4. Percentages of Former Developmental Students Who Earned Associate Degrees From Various Curricular Areas.

Degree recipients earned more credits than did non-recipients, 68.5 compared to 26.3 (Table 29). These findings and those in Table 13 suggest that most non-persistors withdrew relatively soon after

enrollment. Degree recipients earned higher grades than non-recipients, 2.40 compared to 1.55 (Table 30). Less than one-fourth of the non-recipients earned a grade point average as high as 2.00 (C). Most former developmental students who did not earn the associate degree accumulated inadequate grade point averages.

Summary of Results

The developmental program at the Harrisburg Area Community College was designed to provide the opportunity for students with inadequate academic backgrounds to develop academic proficiency and techniques of study in order to qualify for admission to either a career or a transfer program. Students were considered as developmental students if they scheduled two or more courses which were necessary to qualify them for admission to the curriculum in which they planned to enter. During the four-year period from 1965 through 1969, the number of matriculants in the developmental program at H.A.C.C. increased from 157 to 488.

This study was completed to provide (1) a brief description of the developmental students and of their academic background upon entering the College, (2) a summary of the academic performance of these students, and (3) an investigation of certain relationships between academic performance and student background characteristics. The sample included 67 percent of the developmental students who matriculated at H.A.C.C. during the three-year period from 1965-1966 through 1967-1968.

Of the 456 students studied, over eight-tenths were men, seven-tenths were 18 years of age or younger at the time of their matriculation, and six-tenths had completed an academic or college preparatory program in high school.

Two measures of academic achievement and ability indicated that developmental students were less capable than the general student body at H.A.C.C.: (1) a majority of developmental students graduated in the bottom two-fifths of their high school class, and (2) developmental students earned a mean ACT composite score of 16.4, about two points lower than for the overall student population. About seven-tenths of the developmental students earned ACT composite scores lower than the average for all students at H.A.C.C., and about three-tenths earned higher scores. Female developmental students earned higher rankings in their high school class than male developmental students, but they scored lower on the ACT subtests.

From one-third to four-tenths of the developmental students withdrew from the College by the end of their initial year and did not return for additional work. On the average, the developmental students in this study earned 40 credit hours through the period ending with the 1969-1970 year. Four-tenths subsequently enrolled in career programs, and just over one-half enrolled in transfer programs at H.A.C.C.

The subjects of this study earned a 2.12 mean grade point average during their initial term, followed by a sharp drop to a 1.64 grade point average at the end of two terms, and they subsequently recovered to a cumulative 1.78 average earned by the end of the 1969-1970 year. Throughout this period, women students achieved better than men students. Overall, 55 percent of the women and 42 percent of the men earned a 2.00 (C) average or better.

Between three-tenths and one-third of the 1966 and 1967 developmental student matriculants graduated, but a much smaller proportion of 1965 matriculants earned associate degrees. Overall, 27 percent of the former developmental students earned associate degrees. The graduation rate of former developmental students, overall, was moderately lower than that for all matriculants at H.A.C.C. However, for 1966 and 1967 developmental matriculants, the proportion of graduates was nearly the same as for all matriculants at the College.

There appeared to be a positive relationship between high school rank in class and earning the associate degree. Also, recipients of the associate degree, compared to non-recipients, earned higher mean ACT scores, particularly in mathematics.

Former developmental students were more successful in earning degrees from transfer programs than from career programs. One-third of the students who enrolled in transfer programs earned degrees, but considerably lower proportions of students earned degrees from career programs.

Implications and Recommendations

Currently, the stated objective of the developmental program at H.A.C.C. is to prepare students, through improved learning skills and subject knowledge, to enter existing two-year programs. Yet, after entering the two-year transfer or career curricula, about seven-tenths of the former developmental students do not persist to complete the program. To what extent should we incorporate other educational objectives dealing with citizenship, self-awareness, and occupational

preparation, in order to serve the majority who do not earn the associate degree? (An existing group counseling course now attempts to include these objectives.)

Our data revealed that existing developmental students are relatively well off, in terms of academic ability. Half of them scored at or above the norm for all students enrolled at community colleges in Pennsylvania. In a second comparison, just one-fifth of the developmental students at H.A.C.C. had scores as low as the maximum for entrance into a remedial training program at a two-year college in Chicago (Baehr, 1969).

Although urban disadvantaged youth do live in the Harrisburg area, they have not enrolled at H.A.C.C. in numbers sufficient to support growing aspirations for self-improvement. The writers are heartened to note that, at this time, two significant new programs are being implemented for educationally and socio-economically disadvantaged students (Manpower Advancement Program and Career Development Program). It is hoped that these programs will be developed with a sensitivity to the "new" student which we have not served in the past and to educational objectives which have both a short-term relevancy and an open path to future educational achievements.

During the past years for the developmental program there has been little overall administration and coordination of educational objectives, instructional procedures, and evaluation of outcomes. The writers believe that incisive changes in the existing developmental program must be accompanied by additional coordination of objectives, staff, and other resources.

Overall, for the students who have been served, the existing program appears to be successful. The basis for this claim is the fact that nearly one-third of the developmental matriculants in 1966 and 1967 earned the associate degree, and these figures compare well with graduation rates at H.A.C.C. and at "open-door" institutions across the country. However, a particularly discomforting finding from this study is that former developmental students who entered two-year career programs were much less successful than those students who entered transfer programs, and the reasons for this finding need to be explored.

In summary, key questions regarding changes in or an expansion of the developmental program might include the following:

1. What additional or revised educational objectives might be useful (in addition to objectives of preparing students for entry into existing two-year degree programs)?
2. What potential students who do not enroll at H.A.C.C. might benefit from a "developmental" learning experience?
3. How can the effects of specific experiences or courses which are a part of the developmental program be evaluated?
4. How can we implement additional coordination of staff and resources for the developmental program?

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APPENDIX

TABLE I
NUMBER OF DEVELOPMENTAL STUDENT MATRICULANTS
FROM 1965-66 THROUGH 1969-70

1965-66		
Summer 1965	17	
Fall 1965	140	
Spring 1966		
Total		157
1966-67		
Summer 1966	104	
Fall 1966	47	
Spring 1967	44	
Total		195
1967-68		
Summer 1967	192	
Fall 1967	73	
Spring 1968	59	
Total		324
1968-69		
Summer 1967	231	
Fall 1968	128	
Spring 1969	52	
Total		411
1969-70		
Summer 1969	237	
Fall 1969	160	
Spring 1970	91	
Total		488
1970-71		
Summer 1970	166	
Grand Total		1741

TABLE 2
DEVELOPMENTAL STUDENT MATRICULANTS BY YEAR AND SEX

	1965		1966		1967		Total	
	N	%	N	%	N	%	N	%
Male	129	83.8	83	75.5	158	82.3	370	81.1
Female	25	16.2	27	24.5	34	17.7	86	18.9
Total	154	100.0	110	100.0	192	100.0	456	100.0

TABLE 3
AGE AT ENROLLMENT BY YEAR OF MATRICULATION

	1965[1]		1966[2]		1967[3]		Total	
	N	%	N	%	N	%	N	%
17 to 18	99	64.3	83	75.5	135	70.3	317	69.5
19 to 20	39	25.3	19	17.3	47	24.5	105	23.0
21 to 22	12	7.8	2	1.8	4	2.1	18	3.9
23 to 25	2	1.3	3	2.7	2	1.0	7	1.5
26 to 29	0	0	3	2.7	1	.5	4	.9
30 & over	1	.6	0	0	3	1.6	4	.9
Unknown	1	.6	0	0	0	0	1	.2
Total	154	100.0	110	100.0	192	100.0	456	100.0

[1] Age as of December 31, 1965
[2] Age as of December 31, 1966
[3] Age as of December 31, 1967

TABLE 4
HIGH SCHOOL CURRICULUM COMPLETED BY
DEVELOPMENTAL MATRICULANTS

	Male		Female		Total	
	N	%	N	%	N	%
Academic	171	58.2	53	72.6	224	61.0
Non-Academic	123	41.8	20	27.4	143	39.0
Total	294	100.0	73	100.0	367	100.0

TABLE 5
HIGH SCHOOL RANK IN CLASS OF MALES AND FEMALES

	Male		Female		Total	
	N	%	N	%	N	%
Upper fifth	11	3.0	5	5.8	16	3.5
Second fifth	32	8.6	18	20.9	50	11.0
Middle fifth	75	20.3	20	23.3	95	20.8
Fourth fifth	123	33.2	26	30.2	149	32.7
Lowest fifth	107	28.9	11	12.8	118	25.9
Unknown	22	5.9	6	7.0	28	6.1
Total	370	100.0	86	100.0	456	100.0

TABLE 6
HIGH SCHOOL RANK IN CLASS BY YEAR OF MATRICULATION

	1965		1966		1967		Total	
	N	%	N	%	N	%	N	%
Upper fifth	8	5.2	3	2.7	5	2.6	16	3.5
Second fifth	20	13.0	7	6.4	23	12.0	50	11.0
Middle fifth	38	24.7	24	21.8	33	17.2	95	20.8
Fourth fifth	46	29.9	34	30.9	69	35.9	149	32.7
Lowest fifth	24	15.6	37	33.6	57	29.7	118	25.9
Unknown	18	11.7	5	4.5	5	2.6	28	6.1
Total	154	100.0	110	100.0	192	100.0	456	100.0

TABLE 7
MEAN ACT SCORES FOR DEVELOPMENTAL STUDENTS AND FOR ALL MATRICULANTS IN 1966 AND 1967

	1966		1967	
	Developmental[1]	All Students[2]	Developmental[3]	All Students[2]
English	15.9	17.6	15.7	17.6
Mathematics	15.8	17.9	15.8	17.8
Social science	16.6	19.0	16.4	19.0
Natural science	17.4	19.7	17.2	19.3
Composite	16.7	18.7	16.4	18.6

[1] N = 68
[2] Mean ACT scores obtained from ACT Class Profile Reports
[3] N = 160

TABLE 8
MEAN ACT SCORES OF MALES AND FEMALES

	Males[1]	Females[2]	Total[3]
English	15.5	16.8	15.8
Mathematics	16.3	13.5	15.8
Social science	16.8	14.9	16.4
Natural science	17.7	15.4	17.2
Composite	16.7	15.1	16.5

[1] N = 183
[2] N = 45
[3] N = 228

TABLE 9
MEAN ACT SCORES BY HIGH SCHOOL RANK IN CLASS

	Upper and 2nd fifth[1]	Middle fifth[2]	Fourth fifth[3]	Lowest fifth[4]
English	16.0	16.5	16.2	15.2
Mathematics	14.3	15.5	16.6	16.0
Social science	15.9	15.9	17.2	16.8
Natural science	16.2	17.2	17.6	17.9
Composite	15.7	16.5	17.1	16.6

[1] N = 28
[2] N = 45
[3] N = 71
[4] N = 74

TABLE 10
PROPORTIONS OF DEVELOPMENTAL STUDENTS, TOTAL H.A.C.C. MATRICULANTS, PENNSYLVANIA COMMUNITY COLLEGE MATRICULANTS, AND ACT LEVEL I NORM GROUP, WHO EARNED VARIOUS LEVELS OF ACT COMPOSITE SCORES

ACT Score Level	Developmental Student Matriculants[1]	Regular H.A.C.C. Matriculants[2]	Penna. Comm. College Matriculants[3]	Two-yr College National ACT Norm Group[4]
1-14	27.6	17.5	31.2	21.1
15-17	35.5	20.0	24.6	21.1
18-19	17.1	20.9	17.9	16.5
20 & over	19.7	41.5	26.3	41.4
Total percent	100.0	100.0	100.0	100.0
Mean score	16.5	18.6	16.7	18.3

1 228 male and female students during 1966 and 1967
2 530 males during 1967 (ACT, 1968a)
3 4484 male and female students during 1967 (ACT, 1968b)
4 Level I National ACT norm group (Hoyt and Munday, 1968, p. 191)

TABLE II
CURRICULUM LAST ENROLLED IN AT H.A.C.C. BY MALES AND FEMALES

Curriculum[1]	Male N	Male %	Female N	Female %	Total N	Total %
Career						
Secretarial and office studies	0	0	13	15.1	13	2.8
Business career	57	15.4	7	8.1	64	14.1
Engineering & related technologies	41	11.1	1	1.2	42	9.2
Police administration & management	56	15.1	5	5.8	61	13.4
Total career	154	41.6	26	30.2	180	39.5
Transfer						
Business administration	69	18.6	1	1.2	70	15.4
Elementary & secondary education	47	12.7	37	43.0	84	18.4
Engineering	5	1.4	0	0	5	1.1
Liberal arts[2]	71	19.2	16	18.6	87	19.1
Total transfer	192	51.9	54	62.8	246	53.9
Special, others	1	.3	1	1.2	2	.4
Unknown	23	6.2	5	5.8	28	6.1
Total	370	100.0	86	100.0	456	100.0

[1] Although these curricula are listed as transfer or career, there are sometimes only minor distinctions between the two.

[2] Includes life sciences, communications and the arts, math and physical science, and social science.

TABLE 12
CREDITS CARRIED BY MALES AND FEMALES DURING THEIR FIRST SEMESTER OF ATTENDANCE

	Male		Female		Total	
	N	%	N	%	N	%
0-6	220	59.5	59	68.6	279	61.2
7-12	94	25.4	15	17.4	109	23.9
13 & over	56	15.1	12	14.0	68	14.9
Total	370	100.0	86	100.0	456	100.0
Median	5.0		4.4		4.9	

TABLE 13
DATE LAST ATTENDED BY 1965, 1966, AND 1967 MATRICULANTS

	1965		1966		1967	
	N	%	N	%	N	%
1965-66	57	38.8	0	0	0	0
1966-67	34	23.1	36	32.7	0	0
1967-68	26	17.7	34	30.9	66	34.4
1968-69	12	8.2	26	23.6	58	30.2
1969-70	18	12.2	14	12.7	68	35.4
Total	147	100.0	110	100.0	192	100.0

TABLE 14
CUMULATIVE CREDITS CARRIED BY MALES AND FEMALES
AFTER TWO SEMESTERS

	Male		Female		Total	
	N	%	N	%	N	%
0-6	36	9.7	7	8.1	43	9.4
7-12	17	4.6	8	9.3	25	5.5
13-18	61	16.5	10	11.6	71	15.6
19-24	182	49.2	46	53.5	228	50.0
25-30	66	17.8	11	12.8	77	16.9
31 & over	8	2.2	4	4.7	12	2.6
Total	370	100.0	86	100.0	456	100.0
Median	20.3		20.3		20.3	

TABLE 15
CUMULATIVE CREDITS COMPLETED
BY MALES AND FEMALES

	Male		Female		Total	
	N	%	N	%	N	%
Up to 15	89	24.1	14	16.3	103	22.6
16-30	72	19.5	12	14.0	84	18.4
31-45	46	12.4	17	19.8	63	13.8
46-60	44	11.9	12	14.0	56	12.3
61-75	98	26.5	29	33.7	127	27.9
76 & over	21	5.7	2	2.3	23	5.0
Total	370	100.0	86	100.0	456	100.0
Median	37.8		45.0		39.8	

TABLE 16
GRADE POINT AVERAGE EARNED AFTER ONE SEMESTER
BY MALES AND FEMALES

	Male		Female		Total	
	N	%	N	%	N	%
0.00-0.49	17	4.6	2	2.3	19	4.2
0.50-0.99	19	5.1	0	0	19	4.2
1.00-1.49	50	13.5	9	10.5	59	12.9
1.50-1.99	70	18.9	11	12.8	81	17.8
2.00-2.49	113	30.5	26	30.2	139	30.5
2.50-2.99	61	16.5	16	18.6	77	16.9
3.00-3.49	29	7.8	15	17.4	44	9.6
3.50-4.00	11	3.0	7	8.1	18	3.9
Total	370	100.0	86	100.0	456	100.0
Mean	2.06		2.42		2.12	

TABLE 17
GRADE POINT AVERAGE EARNED AFTER ONE SEMESTER
BY HIGH SCHOOL RANK IN CLASS

	Upper and 2nd fifths		Middle fifth		Fourth fifth		Lowest fifth		Total	
	N	%	N	%	N	%	N	%	N	%
0.00-0.49	4	6.1	2	2.1	5	3.4	6	5.1	17	4.0
0.50-0.99	1	1.5	3	3.2	5	3.4	6	5.1	15	3.5
1.00-1.49	7	10.6	13	13.7	20	13.4	10	8.5	50	11.7
1.50-1.99	8	12.1	14	14.7	31	20.8	26	22.0	79	18.5
2.00-2.49	25	37.9	26	27.4	43	28.6	38	32.2	132	30.8
2.50-2.99	7	10.6	20	21.1	32	21.5	16	13.6	75	17.5
3.00-3.49	8	12.1	13	13.7	8	5.4	14	11.9	43	10.0
3.50-4.00	6	9.1	4	4.2	5	3.4	2	1.7	17	4.0
Total	66	100.0	95	100.0	149	100.0	118	100.0	428	100.0
Mean	2.25		2.25		2.10		2.08		2.15	

TABLE 18
GRADE POINT AVERAGE EARNED AFTER ONE SEMESTER BY ACT COMPOSITE SCORE LEVELS

	ACT Scores 001-051 N	%	016-018 N	%	019-036 N	%	Unknown N	%	Total N	%
0.00-0.49	3	3.4	3	4.3	0	0	13	5.7	19	4.2
0.50-0.99	5	5.6	1	1.4	0	0	13	5.7	19	4.2
1.00-1.49	10	11.2	4	5.8	2	2.9	43	18.9	59	12.9
1.50-1.99	13	14.6	14	20.3	8	11.4	46	20.2	81	17.8
2.00-2.49	21	23.6	22	31.9	26	37.1	70	30.7	139	30.5
2.50-2.99	22	24.7	15	21.7	18	25.7	22	9.6	77	16.9
3.00-3.49	13	14.6	7	10.1	9	12.9	15	6.6	44	9.6
3.50-4.00	2	2.2	3	4.3	7	10.0	6	2.6	18	3.9
Total	89	100.0	69	100.0	70	100.0	228	100.0	456	100.0
Mean	2.21		2.00		2.57		1.91		2.13	

TABLE 19
GRADE POINT AVERAGE EARNED AFTER TWO SEMESTERS
BY MALES AND FEMALES

	Male N	%	Female N	%	Total N	%
0.00-0.49	36	9.7	5	5.8	41	9.0
0.50-0.99	28	7.6	3	3.5	31	6.8
1.00-1.49	77	20.8	14	16.3	91	20.0
1.50-1.99	100	27.0	19	22.1	119	26.1
2.00-2.49	87	23.5	32	37.2	119	26.1
2.50-2.99	31	8.4	9	10.5	40	8.8
3.00-3.49	8	2.2	3	3.5	11	2.4
3.50-4.00	3	.8	1	1.2	4	.9
Total	370	100.0	86	100.0	456	100.0
Mean	1.67		1.91		1.64	

TABLE 20
CUMULATIVE GRADE POINT AVERAGE
EARNED BY MALES AND FEMALES

	Male		Female		Total	
	N	%	N	%	N	%
0.00-0.49	17	4.6	2	2.3	19	4.2
0.50-0.99	37	10.0	2	2.3	39	8.6
1.00-1.49	87	23.5	19	22.1	106	23.2
1.50-1.99	77	20.8	16	18.6	93	20.4
2.00-2.49	109	29.5	36	41.9	145	31.8
2.50-2.99	30	8.1	9	10.5	39	8.6
3.00-3.49	11	3.0	1	1.2	12	2.6
3.50-4.00	2	.5	1	1.2	3	.7
Total	370	100.0	86	100.0	456	100.0
Mean	1.75		1.94		1.78	

TABLE 21
CUMULATIVE GRADE POINT AVERAGE EARNED BY HIGH SCHOOL RANK IN CLASS

	Upper and 2nd fifth		Middle fifth		Fourth fifth		Lowest fifth		Total	
	N	%	N	%	N	%	N	%	N	%
0.00-0.49	4	6.1	2	2.1	5	3.4	6	5.1	17	4.0
0.50-0.99	2	3.0	5	5.3	15	10.1	12	10.2	34	7.9
1.00-1.49	14	21.2	22	23.2	31	20.8	34	28.8	101	23.6
1.50-1.99	12	18.2	13	13.7	41	27.5	22	18.6	88	20.6
2.00-2.49	24	36.4	38	40.0	43	28.9	32	27.1	137	32.0
2.50-2.99	7	10.6	10	10.5	11	7.4	9	7.6	37	8.6
3.00-3.49	2	3.0	4	4.2	2	1.3	3	2.5	11	2.6
3.50-4.00	1	1.5	1	1.1	1	.7	0	0	3	.7
Total	66	100.0	95	100.0	149	100.0	118	100.0	428	100.0
Mean	1.89		1.94		1.75		1.68		1.79	

TABLE 22
CUMULATIVE GRADE POINT AVERAGE EARNED BY ACT COMPOSITE SCORE LEVELS

	ACT Scores 001-015		016-018		019-036		Unknown		Total	
	N	%	N	%	N	%	N	%	N	%
0.00-0.49	2	2.2	3	4.3	1	1.4	14	6.1	20	4.4
0.50-0.99	11	12.4	4	5.8	11	15.7	23	10.1	49	10.7
1.00-1.49	18	20.2	17	24.6	19	27.1	60	26.3	114	25.0
1.50-1.99	15	16.9	9	13.0	28	40.0	50	21.9	102	22.4
2.00-2.49	31	34.8	29	42.0	5	7.1	57	25.0	122	26.8
2.50-2.99	10	11.2	4	5.8	5	7.1	20	8.8	39	8.6
3.00-3.49	2	2.2	2	2.9	1	1.4	3	1.3	8	1.8
3.50-4.00	0	0	1	1.4	0	0	1	.4	2	.4
Total	89	100.0	69	100.0	70	100.0	228	100.0	456	100.0
Mean	1.81		1.84		1.56		1.67		1.71	

TABLE 23
ASSOCIATE DEGREES EARNED BY MALES AND FEMALES

	Male		Female		Total	
	N	%	N	%	N	%
Earned associate degree	97	26.2	26	30.2	123	27.0
No associate degree	273	73.8	60	69.8	333	73.0
Total	370	100.0	86	100.0	456	100.0

TABLE 24
ASSOCIATE DEGREES EARNED BY YEAR OF MATRICULATION

	1965		1966		1967		Total	
	N	%	N	%	N	%	N	%
Earned associate degree	27	17.5	37	33.6	59	30.7	123	30.0
No associate degree	127	82.5	73	66.5	133	69.3	333	73.0
Total	154	100.0	110	100.0	192	100.0	456	100.0

TABLE 25
ASSOCIATE DEGREES EARNED BY HIGH SCHOOL RANK IN CLASS

	Upper and 2nd fifths		Middle fifth		Fourth fifth		Lowest fifth		Total	
	N	%	N	%	N	%	N	%	N	%
Earned associate degree	22	33.3	34	35.8	31	20.8	29	24.6	116	27.1
No associate degree	44	66.7	61	64.2	118	79.2	89	75.4	312	72.9
Total	66	100.0	95	100.0	149	100.0	118	100.0	428	100.0

TABLE 26
ASSOCIATE DEGREES EARNED BY ACT COMPOSITE SCORE LEVELS

	ACT Scores 001-015 N	%	016-018 N	%	019-036 N	%	Unknown N	%	Total N	%
Earned associate degree	26	29.2	25	36.2	24	26.7	48	21.1	123	27.0
No associate degree	63	70.8	44	63.8	46	51.1	180	78.9	333	73.0
Total	89	100.0	69	100.0	90	100.0	228	100.0	456	100.0

TABLE 27
MEAN ACT COMPOSITE SCORE OF
ASSOCIATE DEGREE RECIPIENTS AND
NON-RECIPIENTS

	Rec'd degree[1]	Did not receive degree[2]
English	16.2	15.6
Mathematics	16.9	15.2
Social science	17.0	16.2
Natural science	17.6	17.0
Composite	17.1	16.2

[1] N = 75
[2] N = 153

TABLE 28
ASSOCIATE DEGREES EARNED WITHIN SEVERAL CURRICULAR AREAS AT H.A.C.C.
BY FORMER DEVELOPMENTAL STUDENTS

	Rec'd degree	Did not receive degree	Total	% who earned degree by curriculum	% of all degrees earned
Secretarial and office studies	3	10	13	23.1	2.4
Business career	15	49	64	23.4	12.2
Engineering and related career	6	34	40	15.0	4.9
Police adminis. and mgmt.	13	48	61	21.3	10.6
Transfer	83	167	250	33.2	67.5
Unknown	3	25	28	10.7	2.4
Total	123	333	456	27.0	100.0

TABLE 29
CUMULATIVE CREDITS COMPLETED BY ASSOCIATE DEGREE RECIPIENTS AND NON-RECIPIENTS

	Rec'd degree		Did not receive degree		Total	
	N	%	N	%	N	%
Up to 15	0	0	103	30.9	103	22.6
16-30	0	0	84	25.2	84	18.4
31-45	0	0	63	18.9	63	13.8
46-60	6	4.9	50	15.0	56	12.3
61-75	98	79.7	29	8.7	127	27.9
76 & over	19	15.4	4	1.2	23	5.0
Total	123	100.0	333	100.0	456	100.0
Median	68.5		26.3		39.8	

TABLE 30
CUMULATIVE GRADE POINT AVERAGE BY ASSOCIATE DEGREE RECIPIENTS AND NON-RECIPIENTS

	Rec'd degree		Did not receive degree		Total	
	N	%	N	%	N	%
0.00-0.49	0	0	19	5.7	19	4.2
0.50-0.99	0	0	39	11.7	39	8.6
1.00-1.49	0	0	106	31.8	106	23.2
1.50-1.99	0	0	93	27.9	93	20.4
2.00-2.49	92	74.8	53	15.9	145	31.8
2.50-2.99	24	19.5	15	4.5	39	8.6
3.00-3.49	7	5.7	5	1.5	12	2.6
3.50-4.00	0	0	3	.9	3	.7
Total	123	100.0	333	100.0	456	100.0
Mean	2.40		1.55		1.78	